

Enterprise Architecture Standard

Geocode Projection

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Introduction

Projection is a mathematical method of representing the surface of a sphere or other shape on a flat two-dimensional plane. A cornerstone of Geographic Information Systems (GIS) functionality, and mapping in general, is the ability to reference data, which exists on the surface of the earth (a three dimensional sphere) in a two dimensional plane (e.g. a paper, graphic or Internet map). The mathematical transformations for these processes attempt to preserve one of three qualities, while distorting the other two. These qualities are shape, area and direction. For instance, some projections tend to hold area as constant as possible, so land area can be consistently measured over the curvature of the earth in the case of a large variation in degrees north and south, like California. In this case, shape and direction are distorted more than area. Projections are developed to take into account not only these qualities, but the proximity to the polar regions, the size of the study area, the variation over north/south degrees and interest in a metric or English unit (meters vs. feet).

Standard Requirements

The following is the standard geospatial projection as approved and defined by the State of California in two parts: 1) Albers Equal Area, and 2) Coordinate System. This standard is a common configuration for projection files in industry GIS software.

1. Albers Equal Area:

Albers Equal Area	
Projection	Albers
Units	Meters
1 st standard parallel	34 00 00
2 nd standard parallel	40 30 00
Central Meridian	-120 00 00
Latitude of Origin	00 00 00
False easting (meters)	0
False northing (meters)	-4,000,000
Datum	NAD83
Spheroid	Clarke 1866

Although other geospatial projections can be used in analysis, storage and retrieval of GIS system implementations, when publishing, geocoding and implementing interoperability functions, the California Albers projection defined above shall be used.

2. Coordinate System

When storing geographic data as un-projected, the State of California standard is:

Geographic Coordinates	
Datum	NAD83

Definitions

Below are definitions pertinent to the geocoding projection processes that are included in the Statewide Information Management Manual (SIMM) Section 58C, [Enterprise Architecture Glossary](#):

Projection – A method for representing the surface of a sphere or other shape on a flat two-dimensional plane.

Albers Equal Area Projection – A projection specifically designed for maintaining area over shape and direction, particularly over large north-south variation.

Geodetic Datum – A standard position or level that measurements are taken from. A datum is used to define projections further, in order to deal with the fact that the earth is not a true sphere. The State of California has codified in [Public Resources Code Section 8850 – 8861](#), the official geodetic datum and reference network for use within the State. State spatial data are required to be collected and stored in this standard.

Authorities

As described in [Government Code Section 11545](#), the OCIO has broad responsibility and authority to guide the application of Information Technology in California State government. This includes establishing and enforcing state IT strategic plans, policies, and standards.

Geographic Information Systems (GIS) have a significant IT component, and thus fall with the jurisdiction of the OCIO.

Implementation

This EA Standard applies to all new data system development for IT projects approved beginning in January 2010 that are initially funded in the Budget Act of 2010.

For systems that are already in place, state agencies should review the EA Standard, and incorporate implementation or retrofit plans into their Agency Information Management Strategy.

Exceptions to this EA Standard may be submitted to the OCIO by following the “OCIO EA Compliance Component Instructions” found in the SIMM 58A, [Enterprise Architecture Developers Guide](#).

Data stored in individual desktop productivity tools, such as spreadsheets, is not subject to this EA standard. However, agencies interested in geocoding such data for mapping purposes are encouraged to follow the EA Standard and associated EA Practice.